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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

VANAMAN, FRANK BENNETT

ART UNIT	PAPER NUMBER
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3618

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/605,290	Applicant(s) SYED ET AL.	
	Examiner Frank Vanaman	Art Unit 3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-13 and 16-19 is/are pending in the application.
 4a) Of the above claim(s) 8, 9, 11, 18, 19 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4,5 and 7 is/are allowed.
- 6) ☒ Claim(s) 6,10,12,13,16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 24, 2006 has been entered.

Status of Claims

2. Claims 1, 4-13, 16-19 are pending, with claims 8, 9, 11, 18 and 19 being withdrawn from consideration. An Office Action on claims 1, 4-6, 10, 12, 13, 16 and 17 follows.

Claim Objections

3. Claim 10 is objected to because of the following informalities: In claim 10, line 6, it appears as though "limited" should be - limit- -. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 6, 10, 12, 13 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 6, line 2, "the powertrain operating variables" lacks a clear antecedent basis (compare to claim 1, line 3); in claim 10, line 11, "the engine" lacks a clear antecedent basis (note the amendment to claim 10, line 16); in claim 17, line 7, it is not clear which value is less than an ON level.

5. As regards claims currently rejected under 35 USC §112, second paragraph, please note that rejections under 35 USC §102 and 103 should not be based upon considerable speculation as to the meaning of the terms employed and assumptions as to the scope of the claims when the claims are not definite. See *In re Steele* 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA 1962). When no reasonably definite meaning can

Art Unit: 3618

be ascribed to certain terms in a claim, the subject matter does not become anticipated or obvious, but rather the claim becomes indefinite. See *In re Wilson* 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). As such the currently pending claims may be subject to prior art rejections not set forth herein upon the clarification of the claim language.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 10, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank (US 6,116,363). Frank teaches a hybrid vehicle which includes a power unit (engine 14), a plurality of energy storage devices (batteries 28), a transmission (18), a state machine (part of 30) connected at least to a battery state of charge determining device, which machine can control battery charging based on a series of decisions (figure 3), the machine including an off state (line 280), an on state (line 250) and including a region which may be defined as opportunistic (region between lines 280 and 250), the different states being related to a parameter (in this case Depth of Discharge - the inverse of state of charge - note a 0% state of charge corresponds to a 100% depth of discharge) which may include a first value (DOD or inverse of SOC corresponding to that along line 280) and a further second value (DOD or inverse of SOC corresponding to that along line 250),

(a) when the machine is in an 'off' state, and the SOC (inverse of DOD) parameter is less than that associated with a first value, the operation of the machine is characterized by being in an opportunistic state and the power unit, if already on, is maintained in an on condition;

(b) if the machine is in an 'on' state and the SOC (inverse of DOD) parameter is greater than a first level the machine is characterized by being in an opportunistic state;

(c) if the machine is in an opportunistic state (between lines 280 and 250) and the SOC parameter is less than a second value (i.e., DOD is greater than the condition defined by line 250) then the machine is in an 'on' condition; and

Art Unit: 3618

(d) wherein when the machine is in an opportunistic state and the parameter of SOC is greater than the second level (i.e., DOD is less than the condition defined by line 280) then the machine is in an 'off' state; the reference to Frank teaching that the opportunistic region may be defined by overlapped thresholds or by time delay.

The reference to Frank fails to specifically teach the parameter being a discharge power limit of the battery, however inasmuch as the discharge power limit of a battery and the state of charge may be mathematically related to state of charge or depth of discharge, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ a discharge power limit rather than a state of charge for the purpose of providing more accurate or precise control method. As more particularly regards claim 10, the reference to Frank fails to explicitly teach a request to leave the power unit off if already off, or on if already on. Inasmuch as control loops performed by vehicle control systems periodically update the status of control variables (note figure 3), and thus the reading of such variables is performed periodically, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the status of the power generation request (either 'on' or 'off') periodically, for example at least at the time of transition of the measured control variable (i.e., the SOC) from one region to another.

8. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank in view of Kuang et al. (US 6,603,215). The reference to Frank is discussed above and while teaching the use of different state of charge values associated with different speed ranges fails to teach the modification of the values at which the various machine states are triggered by a change in transmission state, or particularly wherein the transmission is placed in a reverse position. Kuang et al. teach that it is well known to adjust the control of an engine (24) by a controller (46) to charge a battery (36) based on its state of charge, and teaches that a change in the control scheme may be had when the transmission state is changed (step 62). In that a vehicle speed range for each gearing of a transmission is well known and well established, it would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the state of charge values taught by Frank to be adjustable based on vehicle speed by transmission

Art Unit: 3618

gear or speed ratio, with a selected set of state of charge values associated with each particular speed ratio, for the purpose of saving memory space in the lookup table which determines state of charge or depth of discharge as a function of vehicle speed (i.e., having an entry for each of the transmission's forward and reverse speeds, rather than numerous entries for each possible vehicle speed).

Allowable Subject Matter

9. Claims 1, 4, 5, and 7 are allowed
10. Claim 6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Comments

11. Applicant's comments, filed with the amendment and request for continued examination have been carefully considered. Applicant's comments concerning the reference to Frank and its dependency of vehicle speed are noted. The examiner notes that for a given speed, the relationship between the first and second values is constant, and additionally as shown in figure 7, the relationship remains unchanged for low vehicle speed. Furthermore, while applicant has argued the issue of vehicle speed, the examiner notes that the claims which remain rejected may still be met by the prior art as set forth in the rejection here-above. Applicant is hereby explicitly invited to point out where in the claims as currently pending (i.e., those claims explicitly treated by this office action), the independence upon vehicle speed is recited, and a fully responsive amendment would be understood to include such a discussion.

Applicant is again reminded that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). During patent examination, the pending claims must be given their broadest reasonable interpretation consistent with the specification. In *re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Applicant always has the opportunity to amend the claims during

Art Unit: 3618

prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In *re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969) The court explained that "reading a claim in light of the specification, to thereby interpret limitations explicitly recited in the claim, is a quite different thing from 'reading limitations of the specification into a claim,' to thereby narrow the scope of the claim by implicitly adding disclosed limitations which have no express basis in the claim." The court found that applicant was advocating the latter, i.e., the impermissible importation of subject matter from the specification into the claim.). See also *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997).

Again applicant has argued that the hysteresis region taught by Frank is not the same as applicant's opportunistic region. While this may or may not be so, the examiner notes that a hysteresis behavior as taught by Frank meets the limitations of the claims which remain rejected. Note, in applicant's example (page 13 of the comments) the explanation that "the engine, if the engine is already turned on, is not turned off when a transition is made from the engine off state to the engine on state." Indeed the reference to Frank teaches a behavior which performs in the same manner. If, for example, the battery depth of discharge (DOD) moves to the point beyond which an engine 'on' state is requested, the engine turns on. As the battery DOD value moves back past the DOD value which commands engine-on (a region previously occupied in an engine off state), the engine remains 'on' - a function of the hysteresis applicant has pointed out - and should the DOD increase such that the value again approached the engine-on threshold, firstly, the engine has remained on and as the threshold is passed, the engine, already being 'on', is not turned off.

Applicant's arguments directed to the previous office action at paragraph 7 are noted, however applicant is reminded that this paragraph was directed to the application of the reference to Kuang against previously pending claims 6, 12 and 13, applied to the limitations associated with the conditions of the transmission.

Art Unit: 3618

Conclusion

12. Any inquiry specifically concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 571-272-6701.

Any inquiries of a general nature or relating to the status of this application may be made through either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A response to this action should be mailed to:

Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450,

Or faxed to:

PTO Central Fax: 571-273-8300

F. VANAMAN
Primary Examiner
Art Unit 3618



8/9/06